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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,627	07/24/2001	Veera M. Boddu	6381/27397	5457

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EXAMINER	
MENON, KRISHNAN S	

ART UNIT	PAPER NUMBER
1723	

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/912,627	BODDU ET AL.	
	Examiner	Art Unit	
	Krishnan S Menon	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-19,21,23-39 and 52-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-19, 21, 23-39 and 52-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 8-19, 21, 23-39 and 52-58 are pending. Claims 40-51 are withdrawn by amendment of 7/23/04

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 8-11,13-19,21,23, 25-28, 30-39, 52-55, 57 and 58 are rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as unpatentable over Portier (US4,775,650).

Claims 8-11 recites chitosan coated on acid-treated ceramic materials like alumina or silica configured to remove heavy metals form wastewater, which is taught by Portier – see abstract, col 2 line 34 – col 3 line 29 and col 5 line 62 – col 6 line 10; especially col 3 lines 10-15 for acid treated. Also, "oxalic acid treated" is a process limitation. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re *Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Since oxalic acid is

only used for the process (i.e., no evidence that oxalic acid remains in the final product), the claim is anticipated unless applicant can show that this treatment provides an unanticipated and unobvious structural difference to the product.

Claims 13 and 33-35 – exposed to fluid environment, wastewater, heavy metal, etc are intended uses: A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Claim 25 and 32: chitosan adhered to support by electrostatic forces, etc; affinity for the metals: inherent. The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d, 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Claims 15-19, 21, 26-28 and 39: the process of treating waste water is taught by Portier – see col 3 lines 54-60 (moving bed – particles in the fluid); and examples, particularly, 5-8 and col 5 line 62 – col 6 line 10. The biosorbent is as in claim 8 above. "Oxalic acid treated" is a process limitation – in re Thorpe.

Claims 14 and 23: chitosan in gel form is inherent – applicant has chitosan coated on ceramic as in the reference, which is produced by coating a solution of chitosan on the ceramic particles (see examples 1-4; and columns 3 and 4: acid treated ceramic and acid treated chitosan as in the applicant's process); therefore, if applicant has chitosan as a gel form, such gel form can be inherently anticipated from the

reference. The express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. "The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness." In re Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995) (affirmed a 35 U.S.C. 103 rejection based in part on inherent disclosure in one of the references). See also In re Grasselli, 713 F.2d 731, 739, 218 USPQ 769, 775 (Fed. Cir. 1983). Dried chitosan coating as in claim 23 – see examples 1-4.

Claims 30 and 31 –chitosan gel – see col 3 line 60- col 4 line 5. "Derived from chitosan gel" and "double coating of chitosan" (claim 31) are process steps in product claims. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re *Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claims 36-38: fluid environment and wastewater are intended use. *Ex parte Masham.* See col 1 line 65 – col 2 line 12, col 2 lines 48-55, and col 5 line 62 – col 6 liner 10 for waste water treatment and metal ions removed as in these claims.

Claim 52 reads product by process – support material prepared by mixing the material with oxalic acid, etc is process (In re Thorpe); acid treated support material is taught by Portier. Claim 53 – biosorbent is configured to remove heavy metals ... - is intended use - *Ex parte Masham.* Claims 54, 55: support materials silica, etc: see col 3

lines 5-30. Claim 57: coating exposed to fluid environment – intended use - *Ex parte Masham. Claim 58: chitosan in gel form* – inherent, see claim 14 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12, 24, 29 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Portier (650) in view of Ostreicher (US 4,321,288).

Portier teaches all the limitations of claims 8,10,15 and 54. The instant claims have perlite or ultra fine silica as support materials as additional limitations, not explicitly taught by Portier. Portier teaches several related support materials including silica and diatomaceous earth, including naturally occurring silicates (col 3 lines 7-29). Perlite is a naturally occurring silicate, and therefore, would be an obvious variation of the teaching of silica and diatomaceous earth. Ostreicher teaches perlite and diatomaceous earth as "well known" high surface area particles, and particularly perlite because of its "small size" (ultra fine). It would be obvious to one of ordinary skill in the art at the time of invention to use perlite or ultra fine silica as an alternate but equivalent to the support material as taught by Portier because of their high surface area. Re the ultra fine silica, Portier also teaches that the particle size could be optimized by accepted engineering practice – see col 3 lines 56-60. Discovery of an optimum value of a result effective

variable in a known process is ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Aller, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955).

Response to Arguments

Applicant's arguments filed 1/28/05 have been fully considered but they are not persuasive.

In response to the argument that Portier does not teach oxalic acid treated silica or perlite, please see the rejection. The argument that the oxalate complexes bring negative charges to the surface which help bind the amine of chitosan, is common to any acid. If applicants believe that oxalic acid treatment affords any specific unanticipated and unobvious structure, then applicants need to provide evidence to that fact.

In response the argument that Ostreicher does not teach oxalic acid treated perlite or fine silica and Ostreicher teaches away from the claimed invention, Ostreicher is used only to show that these are well known as support materials. Therefore, these arguments are not relevant and not commensurate in scope with the rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan Menon
Patent Examiner

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